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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DOTE, JANIS L	
ART UNIT	**PAPER NUMBER**
1756	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/615,770	MOCHIZUKI ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-15 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-15 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/14/06; ~~11/2/06~~*. 11-20-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Dec. 18, 2006, has been entered.

2. The examiner acknowledges the amendments to claims 1, 6, 11, 12, and 17 set forth in the amendment filed on Dec. 18, 2006. Claims 1-9, 11-15, and 17-20 are pending.

3. The examiner has deleted the reference US 5,827,632 listed on the form PTO-1449 filed on Aug. 14, 2006, because the reference has been considered previously and is listed on the form PTO-1449 filed on Dec. 4, 2003.

4. The examiner notes that the instant specification at page 69, lines 9-23, discloses that the parameters SF-1 and SF-2 recited in the instant claims are determined from the following equations 1 and 2:

Equation 1. SF-1 = ((absolute maximum length of a toner particle)^2/ projection area of a toner particle) x (π/4) x 100

Equation 2. SF-2 = (peripheral length of toner particle)^2/ (projection area of a toner particle) x (π/4) x 100

In other words, the "area of the particle of the base toner" in the formulas recited in the instant claims is a "projection area" of the toner base.

The examiner also notes that the average degree of roundness recited in instant claims 1, 6, 12, and 17 is defined as the "arithmetic mean" of the degree of roundness of the inorganic fine particles, where the degree of roundness is defined as "a peripheral length" of a circle having an area equal to an area of a binarized particle image of an inorganic particle divided by the length of an outlined portion obtained by connecting the edge points of a binarized particle image of the inorganic particle. Antecedent basis for this definition can be found at page 36, lines 16-17, and page 37, lines 1-11, of the instant specification.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and

use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 4-6, 9, 11, 12, 15, 17, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant independent claims 1, 6, 12, and 17 recite "inorganic fine particles having . . . an average degree of roundness greater than or equal to 0.975 and less than or equal to 0.990."

The originally filed specification does not provide an adequate written description of the generic inorganic fine particles having the average degree of roundness as recited in the instant claims. The originally filed specification at page 36, lines 3-10, describes only spherical silica particles having an average degree of roundness of 0.95 to no more than 0.996. The originally filed specification at page 37, lines 11-22, describes the disadvantages and problems of using silica particles having an average degree of roundness of below 0.95 or having an average degree of roundness above 0.996. The

originally filed specification describes spherical silica particles having an average degrees of roundness of 0.975 or 0.990 at page 103, line 9, and page 104, line 21, respectively. The originally filed specification does not appear to provide any written description of generic "inorganic particles" having the average degree of roundness recited in the instant claims.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1, 2, 5-7, 11, 17, and 18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,827,632 (Inaba'632), as evidenced by applicants' admission in the instant specification at page 37, lines 11-22, and the tables at page 115, embodiment 7, and the accompanying text (applicants' admissions I).

Inaba'632 discloses a developer comprising a magnetic carrier and a toner. Example 7 at cols. 31-32. The toner comprises toner particles comprising a binder resin and a cyan colorant, hydrophobic inorganic fine powder a-1, and hydrophobic silicon compound fine powder (A). The toner particles have a shape factor SF-1 of 109 and a shape factor SF-2 of 120. The

shape factors SF-1 and SF-2 are determined in the same manner as recited in the instant claims. Col. 7, line 57, to col. 8, line 6. The hydrophobic silicon compound fine powder (A) comprises silica particles and has an average particle size, i.e., average particle diameter, of 40 nm. Col. 27, lines 5-8; Table 1, hydrophobic silicon compound fine powder (A); and example 7. The toner particles have a weight average particle diameter of 7.7 μm. The hydrophobic silicon compound fine powder (A) has an average particle diameter of 40 nm that meets the particle size limitations recited in instant claims 1, 6 and 17. The shape factors SF-1 and SF-2 are within the respective ranges recited in instant claims 1, 6, and 17. Inaba'632 further teaches that the colorant can be a black colorant, a yellow colorant, or a magenta colorant. Col. 5, lines 12-16.

Inaba'632 further discloses an image forming apparatus comprising a developing unit **74** that comprises a plurality of developing units, wherein each of the units comprises a developer that comprises a toner having a different colorant as recited in instant claim 11, and a transfer unit **77**. Fig. 7; col. 21, line 45, to col. 24, line 29. The apparatus meets the components recited in instant claims 6 and 11. Inaba'632 also discloses an image forming method comprising the steps recited

in instant claim 17, where the developer described above is used to develop the latent image formed on the photoconductor. Fig. 7, col. 21, line 45, to col. 24, line 29; and Table 5 at col. 35, example 7.

Inaba'632 does not disclose that the toner particles of example 7 have a volume average particle size of 2 to 8 μm as recited in instant claims 1, 6, and 17. However, as discussed above the toner particles in example 7 of Inaba'632 have a weight-average particle size of 7.7 μm. The particle size value of 7.7 μm is within the numerical range of the volume average particle size recited in instant claims 1, 6, and 17. Thus, based on the presumption that the toner particles have uniform density, it is reasonable to conclude that the toner particles in example 7 of Inaba'632 have a volume average particle size of 7.7 μm. Accordingly, the burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Inaba'632 does not disclose that the hydrophobic silicon compound fine powder (A) has an average degree of roundness as recited in instant claims 1, 6, and 17. However, the instant specification at page 37, lines 11-23, discloses that "[i]n a case where the average degree of roundness of the silica particle is below 0.95, fluidity of [the] toner, supply property of [the] toner, and preservation property of [the] toner shall

decrease. In a case where the average degree of roundness of the silica particle is above 0.996, retaining silica particles on the toner surface shall become difficult, affinity between the silica particles and the toner shall decrease, the silica particles shall be unable to function as external additives, storing property and chargeability with respect to environment shall deteriorate, to thereby affecting the image." The instant specification shows that when a developer comprises silica inorganic fine particles having an average degree of roundness of 0.990, the developer exhibits good cleaning properties and toner transfer rate, and provides images without blanks. See the tables at page 115, embodiment 7, and the accompanying text. The developer in example 7 of Inaba'632 exhibits stable charging properties under several different environmental conditions. The Inaba'632 developer exhibits good anti-blocking properties (i.e., "storing" or "preservation" property), and high transfer efficiency. The developer also exhibits good cleaning properties and provides images without white dropout. See Table 5 at col. 35, example 7, and the accompanying text. These are the properties sought by applicants. Thus, because the Inaba'632 developer in example 7 appears to exhibit the properties sought by applicants, it is reasonable to presume that the Inaba'632 inorganic fine powder (A) has an average

roundness as recited in instant claims 1, 6, and 17. The burden is on applicants to prove otherwise. Fitzgerald, supra.

9. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0118366 (Nukada) combined with Inaba'632, as evidenced by applicants' admissions I.

The claims are rejected for the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 6, which are incorporated herein by reference.

10. Claims 1, 4-6, 9, 11, 17, and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or in the alternative, under 35 U.S.C. 103(a) obvious over Inaba'632, as evidenced by applicants' admissions I.

Inaba'632 discloses a developer, an image forming apparatus, and method of forming an image, as described in paragraph 8 above, which is incorporated herein by reference.

As discussed in paragraph 8, the developer disclosed by Inaba'632 comprises toner particles, hydrophobic inorganic fine powder a-1, and hydrophobic silicon compound fine powder (A). The hydrophobic silicon compound fine powder (A) comprises silica particles and has an average particle diameter of 40 nm. The hydrophobic inorganic fine powder a-1 - a hydrophobic

titanium oxide powder - has an average particle diameter of 51 nm. Table 1 at col. 30, fine powder a-1. The fine powder a-1 meets the inorganic fine powder particle size limitation recited in instant claims 1, 6, and 17. The hydrophobic silicon compound fine powder (A) meets the "further inorganic fine particles" limitation recited in instant claims 4 and 9.

Inaba'632 does not disclose that the hydrophobic inorganic fine powder a-1 has an average degree of roundness as recited in instant claims 1, 6, and 17. However, the instant specification at page 37, lines 11-23, discloses that if the degree of roundness is below 0.95, "fluidity of [the] toner, supply property of [the] toner, and preservation property of [the] toner shall decrease"; and that if the average degree of roundness is above 0.996, "retaining silica particles on the toner surface shall become difficult, affinity between the silica particles and the toner shall decrease, the silica particles shall be unable to function as external additives, storing property and chargeability with respect to environment shall deteriorate, to thereby affecting the image." The discussion of the instant specification in paragraph 8 above is incorporated herein by reference. The developer in example 7 of Inaba'632 exhibits stable charging properties under several

different environmental conditions. The Inaba'632 developer exhibits good anti-blocking properties (i.e., "storing" or "preservation" property), and high transfer efficiency. The developer also exhibits good cleaning properties and provides images without white dropout. See Table 5 at col. 35, example 7, and the accompanying text. These are the properties sought by applicants. Thus, because the Inaba'632 developer in example 7 appears to exhibit the properties sought by applicants, it is reasonable to presume that the inorganic fine powder a-1 has an average roundness as recited in instant claims 1, 6, and 17. The burden is on applicants to prove otherwise. Fitzgerald, supra.

11. Claims 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nukada combined with Inaba'632, as evidenced by applicants' admissions I.

The claims are rejected for the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 8, which are incorporated herein by reference.

12. Applicants' arguments filed on Dec. 18, 2006, with respect to the rejections over Inaba'632 set forth in paragraphs 8-11 above have been fully considered but they are not persuasive.

Applicants continue to traverse the rejections for the reasons set forth in the response filed on May 10, 2006. Applicants further assert that the showing in the Rule 132 declaration filed on Dec. 18, 2006, which was executed by Satoshi Mochizuki on Dec. 6, 2006, (Mochizuki declaration) demonstrates "superiority for the recited average degree of roundness range of 0.975-0.990 of the inorganic fine particles, which superiority could not have been predicated from the applied prior art."

For the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 9, pages 14-18, applicants' assertions set forth in the response filed on May 10, 2006, are not persuasive.

Applicants' assertion that the Mochizuki declaration demonstrates "unexpected" results over the prior art is not probative because the rejections of the toner over Inaba'632 are under 35 USC 102(b)/103(a). The rejections are "hybrid" rejections, in which the only question is whether or not the reference toner has all of the properties recited in the claims. For the reasons set out in the rejections in paragraphs 8 and 10 above, a prima facie case has been established that the Inaba'632 hydrophobic silicon compound fine powder (A) or the hydrophobic inorganic fine powder a-1, respectively, appear to

have the average degree of roundness recited in the instant claims.

In addition, the showing in the Mochizuki declaration is insufficient to show that the Inaba'632 hydrophobic silicon compound fine powder (A) or the hydrophobic inorganic fine powder a-1 does not have the average degree of roundness recited in the instant claims. Comparison examples A, B, and C do not comprise the Inaba'632 hydrophobic silicon compound fine powder (A) having the particular particle size distribution and hydrophobic inorganic fine powder a-1, which are described by Inaba'632 to be critical to its invention. See Inaba'632, col. 2, lines 35-47. In addition, comparison examples A and C comprise silica particles having average particle diameters of 170 nm and 155 nm, which are both outside the teachings of Inaba'632. See Inaba'632, col. 2, lines 38-42, which teaches that the Inaba'632 hydrophobic silicon compound fine powder has an average particle size of 30-120 nm. The silica particles in comparison example A are also outside the average particle diameter range of 30 to 160 nm recited in the instant claims. Accordingly, comparison examples A, B, and C do not appear to provide probative comparisons to the Inaba'632 hydrophobic silicon compound fine powder (A) or to the Inaba'632 hydrophobic inorganic fine powder a-1. Applicants have not met their burden

to show that the Inaba'632 hydrophobic silicon compound fine powder (A) or the hydrophobic inorganic fine powder a-1 in example 7 does not have the required degree of roundness recited in the instant claims.

Accordingly, the rejections over Inaba'632 in paragraphs 8-11 stand.

13. Claims 1-5 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,712,072 (Inaba'072) combined with US 6,403,271 B1 (Suzuki), as evidenced by applicants' admission I.

Inaba'072 discloses developers comprising a magnetic carrier and a color toner. The color toner comprises: color toner particles, which comprise a binder resin, a charge control agent, a release agent, and a colorant; and hydrophobic silica powder. Col. 17, line 59, to col. 18, line 52, and example 9 at col. 20, lines 48-54, and in Table 3 at cols. 19-20. The cyan-colored toner particles in example 9 have a weight-average particle diameter of 6.3 μm. The cyan-colored toner particles in example 9 have a shape factor SF-1 of 115 and a shape factor SF-2 of 120. The shape factors SF-1 and SF-2 are determined in the same manner as recited in the instant claims. Col. 13,

lines 10-22 and 50-62. The shape factors SF-1 and SF-2 are within the respective ranges recited in instant claims 1 and 17.

Inaba'072 also discloses an image forming method comprising the steps recited in instant claim 17, but for the use of a developer comprising the particular inorganic fine particles recited in instant claim 17. Col. 1, lines 11-47, and col. 16, lines 4-9, and 18-46.

Inaba'072 does not disclose that the toner particles of example 9 have a volume average particle size of 2 to 8 μm as recited in instant claims 1 and 17. However, as discussed above the toner particles in example 9 of Inaba'072 have a weight-average particle size of 6.3 μm. The particle size value of 6.3 μm is within the numerical range of the volume average particle size recited in instant claims 1 and 17. Thus, based on the presumption that the toner particles have uniform density, it is reasonable to conclude that the toner particles in example 9 of Inaba'072 have a volume average particle size of 6.3 μm. Accordingly, the burden is on applicants to prove otherwise. Fitzgerald, supra.

Inaba'072 does not exemplify the use of the inorganic fine particles recited in instant claims 1 and 17. However, as discussed above, the Inaba'072 developer comprises an externally added hydrophobic silica powder. Inaba'072 does not limit the

type of silica powder used. Inaba'072 teaches that "any flowability improving agent, such as silica . . . " may be used in its toner. Col. 14, lines 41-42.

Suzuki teaches developers comprising toner particles combined with (1) monodisperse hydrophobic spherical silica particles B obtained by a sol-gel method having an average particle diameter of 80 nm; and (2) inorganic particles obtained by subjecting metatitanic acid ($TiO(OH)_2$) to an isobutyltrimethoxysilane treatment, which have an average particle diameter of 35 nm. See monodisperse spherical silica B at col. 17, lines 35-40, and example 2 at col. 22. The hydrophobic spherical silica particles B taught by Suzuki meet the particle size and compositional limitations regarding the inorganic fine particles recited in instant claims 1-3 and 17-19. The inorganic particles obtained by subjecting metatitanic acid ($TiO(OH)_2$) to an isobutyltrimethoxysilane treatment meet the "further inorganic fine particles" limitation recited in instant claims 4 and 20. According to Suzuki, the use of the hydrophobic spherical silica particles B provides a developer in which "the toner flowability, charging property, the developing property, the transferring property, and the fixing property are simultaneously satisfied in a long period of time." Col. 4, line 48, to col. 5, line 5. Suzuki further

discloses that the use of the inorganic particles comprising metatitanic acid ($TiO(OH)_2$) can provide developers that are excellent in charging property, environment stability, flowability, caking resistance, stable negative charging property, and "stable image quality maintenance property." Col. 10, lines 39-43.

Suzuki does not disclose that the monodisperse hydrophobic spherical silica particles B have an average degree of roundness as recited in instant claims 1 and 17. However, the instant specification at page 37, lines 11-23, discloses that if the degree of roundness is below 0.95, "fluidity of [the] toner, supply property of [the] toner, and preservation property of [the] toner shall decrease"; and that if the average degree of roundness is above 0.996, "retaining silica particles on the toner surface shall become difficult, affinity between the silica particles and the toner shall decrease, the silica particles shall be unable to function as external additives, storing property and chargeability with respect to environment shall deteriorate, to thereby affecting the image." The discussion of the instant specification in paragraph 8 above is incorporated herein by reference. As discussed supra, the Suzuki hydrophobic spherical silica particles B are obtained by a process within the process limitations recited in claims 3

and 19. In addition, the Suzuki spherical hydrophobic silica particles B have a preferred Wadell spherical degree of 0.90. See Suzuki, col. 7, lines 54-57, which discloses that the monodisperse spherical silica particles have a preferred Wadell spherical degree of 0.8 or more. Suzuki also teaches that the use of the hydrophobic spherical silica particles B provides a developer in which "the toner flowability, charging property, the developing property, the transferring property, and the fixing property are simultaneously satisfied in a long period of time." Col. 4, line 48, to col. 5, line 5. Suzuki teaches that because the hydrophobic spherical silica particles are monodisperse and spherical, the particles are uniformly dispersed on the surface of the toner particles. Col. 7, lines 46-49. Suzuki shows that when the developer comprises the hydrophobic spherical silica particles B, the developer exhibits good charging properties under different environmental conditions. The developer also exhibits good transfer efficiency. See Tables 1 and 2 at col. 25, example 2, and the accompanying text. The properties sought by Suzuki are the same as those sought by applicants. Thus, because the Suzuki hydrophobic spherical silica particles B are obtained by a process within the process limitations recited in instant claims 3 and 19, and because developers comprising the Suzuki

hydrophobic spherical silica particles B appear to exhibit the properties sought by applicants, it is reasonable to presume that the Suzuki hydrophobic spherical silica particles B have an average roundness as recited in instant claims 1 and 17. The burden is on applicants to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Suzuki, to use the hydrophobic spherical silica particles B and metatitanic acid inorganic particles taught by Suzuki as the external additive in the developer disclosed by Inaba'072. That person would have had a reasonable expectation of successfully obtaining color developers having satisfactory toner flowability, charging property, the developing property, the transferring property, and the fixing property for a long period of time. It also would have been obvious for that person to use the resultant developers in the image forming method disclosed by Inaba'072, because that person would have had a reasonable expectation of successfully obtaining an image forming method that provides satisfactory toner images for a long period of time.

14. Claims 6-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nukada combined with Inaba'072 combined with Suzuki, as evidenced by applicants' admissions I.

The claims are rejected for the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 11, which are incorporated herein by reference.

15. Claims 1-9, 11, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,177,223 B1 (Hashimoto) combined with Suzuki, as evidenced by applicants' admission I.

Hashimoto discloses developers comprising a magnetic carrier and a color toner. The color toner comprises color toner particles, which comprise a binder resin, a release agent, and a colorant, and hydrophobic silica powder. Col. 29, lines 27-34 and 55-63; and Table 1 at col. 34, toners A2, A3, and A4. The magenta-colored toner particles of toner A2 have a shape factor SF-1 of 127 and a shape factor SF-2 of 123. The cyan-colored toner particles of toner A3 have a shape factor SF-1 of 123 and a shape factor SF-2 of 121. The yellow-colored toner particles of toner A4 have a shape factor SF-1 of 130 and a shape factor SF-2 of 120. The shape factors SF-1 and SF-2 are determined in the same manner as recited in the instant claims. Col. 14, lines 12-28. The shape factors SF-1 and SF-2 are within the respective ranges recited in instant claims 1, 6, and 17.

Hashimoto further discloses an image forming apparatus comprising a developing unit **4** comprising a plurality of developing units that comprise the developers described above and a transfer unit **7**. Fig. 1; col. 21, line 18, to col. 22, line 44; and col. 34, lines 46-50. The plurality of developing units comprise the toners A2, A3, and A4, which meet the limitation that the developers each comprise a different color as recited in instant claim 11. Hashimoto also discloses an image forming method comprising the steps recited in instant claim 17, but for the use of a developer comprising the particular inorganic fine particles recited in instant claim 17. The developers described above are used to develop the latent image formed on the photoconductor. Fig. 1, and col. 34, line 46, to col. 35, line 32.

Hashimoto does not disclose that the toner particles in toners A2, A3, and A4 have a volume average particle size of 2 to 8 μm as recited in instant claims 1 and 17. However, the toner particles in toners A2, A3, and A4 have a weight-average particle size of 6.9 μm, 7.1 μm, and 7.1 μm, respectively. See Table 1. The particle size values of 6.9 μm and 7.1 μm are within the numerical range of the volume average particle size recited in instant claims 1, 6, and 17. Thus, based on the presumption that the toner particles have uniform density, it is

reasonable to conclude that the toner particles in toners A2, A3, and A4 of Hashimoto Inaba'072 have a volume average particle size of 6.9 μm, 7.1 μm, and 7.1 μm, respectively. Accordingly, the burden is on applicants to prove otherwise. Fitzgerald, supra.

Hashimoto does not exemplify the use of the inorganic fine particles as recited in instant claims 1, 6, and 17. However, as discussed above, Hashimoto's developers comprise an externally added hydrophobic silica powder.

Suzuki teaches developers comprising toner particles combined with (1) monodisperse hydrophobic spherical silica particles B obtained by a sol-gel method having an average particle diameter of 80 nm; and (2) inorganic particles having an average particle diameter of 35 nm. The discussions of Suzuki and applicants' admission I in paragraph 13 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Suzuki, to use the hydrophobic spherical silica particles B and metatitanic acid inorganic particles taught by Suzuki as the external additive in the developers disclosed by Hashimoto. That person would have had a reasonable expectation of successfully obtaining color developers having satisfactory toner flowability, charging

property, the developing property, the transferring property, and the fixing property for a long period of time. It also would have been obvious for that person to use the resultant developers in the image forming apparatus and image forming method disclosed by Hashimoto. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus and image forming method that provides satisfactory toner images for a long period of time.

16. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nukada combined with Hashimoto and Suzuki, as evidenced by applicants' admission I.

The claims are rejected for the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 15, which are incorporated herein by reference.

17. Applicants' arguments filed on Dec. 18, 2006, with respect to the rejections in paragraphs 13-16 above have been fully considered but they are not persuasive.

Applicants traverse the rejections over Suzuki for the reasons set forth in the response filed on May 10, 2006. Applicants further assert that the showing in the Mochizuki declaration filed on Dec. 6, 2006, demonstrates "superiority for

the recited average degree of roundness range of 0.975-0.990 of the inorganic fine particles, which superiority could not have been predicated from the applied prior art."

For the reasons discussed in the office action mailed on Jul. 20, 2006, paragraph 12, pages 26-29, applicants' assertions set forth in the response filed on May 10, 2006, are not persuasive. For the reasons set out in the rejections in paragraphs 13 and 15 above, a prima facie case has been established that the Suzuki spherical hydrophobic silica particles appear to have the average degree of roundness recited in the instant claims.

The Mochizuki declaration is insufficient to show that the instantly claimed toner provides "unexpected" results over the prior art for the following reasons:

The showing in the declaration is not commensurate in scope with the instant claims. Embodiments A, 6, and 7, which are labeled of the invention, are preferred. The toners in embodiments A and 7 comprise preferred spherical hydrophobic silica particles made from a sol-gel technique, which have average particle sizes of 130 nm and 120 nm, respectively, and average degrees of roundness of 0.980 and 0.990, respectively. See claims 3, 8, 14, and 19. Embodiment 6 comprises preferred hydrophobic silica particles having an average particle size of

160 nm and an average degree of roundness of 0.975. See claims 2, 7, 13, and 18. Instant independent claims 1, 6, 12, and 17 do not limit the composition of the inorganic particles. In addition, the average particle sizes of 120, 130, and 160 nm do not represent the full scope of the instant claims. The instant claims require that the inorganic particles have an average particle diameter between 30 nm and 160 nm. Applicants have not shown that a toner comprising inorganic particles having an average particle diameter of 30 nm and an average degree of roundness as recited in the instant claims provide any of the argued advantages shown in the declaration.

Thus, given the welter of unconstrained variables and the limited showings in the declaration, applicants have not satisfied their burden to show that the full scope of the instantly claimed invention provides unexpected results over the prior art.

The declaration does not compare to the closest prior art of Inaba'072. Comparison examples A, B, and C comprise yellow, cyan, and magenta toners that have SF-1 value of 111, 112, and 113, respectively, and SF-2 values of 133, 138, and 136, respectively. As discussed in the rejection in paragraph 13 above, the Inaba'072 toner has an SF-1 value of 115 and an SF-2 value of 120, which both meet the SF-1 and SF-2 values recited

in the instant claims. Inaba'072 teaches that the SF-2 value can be in the range of 100 to 130 to improve the transferring property of the toner. See Inaba'072, col. 13, lines 46-48, and reference claim 3. The SF-2 values of 133, 138, and 136 are outside the teachings of Inaba'072. Comparison examples A, B, and C do not appear to provide probative comparisons to Inaba'072. Because the declaration does not compare to the closest prior art, it is not clear whether the instantly claimed toner provides "unexpected" results over the prior art of Inaba'072.

Accordingly, the rejections over the cited prior art in paragraphs 13-16 stand.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

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